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UNITED STATES DEPARTMENT OF AGRICULTURE FOREST SERVICE RO

REPLY TO: 3430 Evaluation DATE: November 1, 1984

SUBJECT: Pathological/Entomological Stand Examinations
Groveland Ranger District (Report No. 84-41)

TO: Forest Supervisor, Stanislaus National Forest

At your request, two stands on the Groveland Ranger District were appraised for current and potential insect and disease problems by pathologist John Kliejunas and entomologist Dave Schultz on July 19, 1984. Prescriptions are being written for the two stands as a part of the silvicultural certification of Gary Deboi and John Schmechel. Following are Forest Pest Management's observations and management considerations for the two stands.

STAND I (Gary Deboi)

Observations

The 90-year-old mixed conifer stand is composed of Douglas-fir, ponderosa pine, incense-cedar, and sugar pine. The stand is on one of the better sites on the District (Site Class 80). Gary's prescription is for commercial thinning.

The only pest noted was red ring rot, caused by Phellinus pini, on Douglas-fir. Conks of the fungus were common in portions of the stand, with some Douglas-fir having 4 to 5 conks in the butt log. Gary's specific concern regarding the rot was whether leaving trees with conks will provide inoculum for infection of other trees, or if removing trees with conks will reduce inoculum and subseqent decay in the leave trees, and how rapidly decay would progress in leave trees with conks.

Management Considerations

The effects of P. pini in second growth, relatively young Douglas-fir trees in mixed conifer stands have not been critically examined in California. Most of the information available on the red ring rot fungus is for old growth Douglas-fir in relatively pure stands in northern California and in the Northwest. The Tahoe, Klamath, and Shasta-Trinity National Forests have broad, general guidelines

for grade-reductions, but none are available for the Stanislaus because of the low volume of Douglas-fir present. However, some general guidelines are in the literature.

Reducing to a significant extent the number of spores available for infection of other trees in the stand by removing trees with conks is, at best, a doubtful practice. Removing trees solely for the purpose of reducing inoculum would be expensive, and, because inoculum from adjacent stands would still be available, would not decrease the risk of new infections or lessen the increase in decay. This does not mean that, when marking trees, red ring rot should be ignored.

Conks of the red ring rot fungus are an indicator of internal decay. Numerous guidelines are available that relate the amount of decay associated with a conk or conks, but they were developed in other areas. Cull factors vary from stand to stand, and indicators or cull factors developed from experience in one area should not be applied elsewhere without verification. The only way to determine the extent of internal decay in relation to the external indicators (conks) in Gary's stand is to cut a few trees and examine them.

The numerous P. pini conks on Douglas-fir indicate that internal decay is present and that affected trees may not be putting on net growth. When increase in volume through growth is offset by loss of volume through decay, a decline in net volume will occur and the trees have reached their pathological rotation. In Gary's stand, the Douglas-firs with numerous conks are probably not contributing to future stand growth. If they are (a question which can only be answered by felling and examining trees), the value increase would need to offset the volume decreases.

The question of removing trees with indicators of decay now or leaving them until the next scheduled cut is primarily a question of economics. If the District can economically afford to drop cull trees, they should do so because the cull trees are occupying growing space that could be better utilized by unaffected trees. If the cost prohibits removal now, development of decay in the heartwood can be reduced by shortening the rotation.

STAND II (John Schmechel)

Observations

John's stand, located near Rush Creek, is a 105-year-old mixed conifer stand with restrictions on available prescriptions. Because the stand is within a view area (adjacent to Highway 120 and near the entrance to Yosemite National Park) and adjacent to Rush Creek, an all-aged stand needs to be maintained. John's prescription is for group selection.

Pests noted in the stand were relatively minor. Light infestations of western dwarf mistletoe (Arceuthobium campylopodum) were present in a few overstory ponderosa pines; only scattered infections were seen in adjacent understory pines. True mistletoe (Phoradendron bolleanum ssp. pauciflorum) was infecting white firs in one area. Elytroderma disease (Elytroderma deformans) was noted on one ponderosa pine. Although annosus root disease, caused by Fomes annosus, was suspected, its presence in true firs or pines could not be confirmed. There was no evidence that, if annosus root disease is present in the stand, it was causing any impact.

Management Considerations

Of the minor pests present, western dwarf mistletoe has the most potential to interfere with management objectives and is the only pest in John's stand that will respond to silvicultural treatment. Dwarf mistletoe infections are currently light and scattered. As a result, it will be many decades before it seriously impacts the overstory. Because the prescription is to maintain an all-aged stand through group selection, portions of the understory are likely to become infected. If dwarf mistletoe infections are totally ignored in selection of group boundaries, infections will slowly increase to the point that maintaining an all aged stand becomes impossible. Techniques which would reduce the impact of dwarf mistletoe in an all aged stand include adjusting the boundary of groups selected for harvest to include all infected trees; harvesting, girdling or dropping infected individual trees; and favoring non-host regeneration near infected pines.

If Gary or John have further questions regarding the effects of pests on their prescriptions, have them contact John Kliejunas or Dave Schultz (556-6520) of my Staff.

Wilfred L. Freeman, Jr.

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Director of Forest Pest Management